Source Water Assessment Program (SWAP) Report For Dawning Place School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
July 30, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	Dawning Place School
PWS Address	Route 131
City/Town	Dudley, Massachusetts
PWS ID Number	2080004
Local Contact	Bonnie DePietro
Phone Number	(508) 248-1019

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	2080004-01G	100	413	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for Dawning Place School is located behind the school building in the playground. The well has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 413 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribu te water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The well serving the facility has no treatment at this time. For current information on monitoring results, please contact the Public Water System contact person listed above in Table. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html .

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **An Aboveground Storage Tank (AST) With Heating Oil;**
3. **Hazardous material storage**
4. **Septic system within the IWPA; and**
5. **Stormwater Catchbasin.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I –** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains school buildings, hazardous material storage, playground and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- Remove all non-water supply activities, especially the paint storage, from the Zone I to comply with DEP's Zone I requirements.
- Do not use road salt within the Zone I.
- If the facility intends to continue utilizing the structures, playground, and parking areas in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Hazardous material storage	Yes	Yes	High	Paint & other cleaning material
Parking lot & playground	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
Fuel Storage Above Ground	Yes	Yes	Moderate	Tank is covered, and located on an impervious surface
Structures	Yes	Yes	-	Non-water supply structures in Zone I

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

2. **Aboveground Storage Tank (AST) –** There is an old AST located in the garage. If managed improperly, Aboveground Storage Tanks can be a potential source contamination due to leaks or spills of the chemicals they store.

   Recommendations:

- Aboveground storage tanks in your IWPA should be located on an impermeable surface, and also contained in an area large enough to hold 110% of the complete liquid volume, should a spill occur.
- Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.

3. **Hazardous materials storage –** Gallons of paint are stored in the garage within the Zone I and IWPA. Leaks or spills of improperly stored or contained paint can potentially contaminate the water supply.

   Recommendation:

- Move the materials to a different location outside of the Zone I, preferably outside the IWPA.

4. **Septic system -** The septic system is located within the IWPA. The septic system is pumped annually. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

   Recommendations:

- Do not pour hazardous materials down drains or toilets.
- Avoid septic tank cleaners, especially those with acids and solvents.
- Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

5. **Storm Water Catch Basin –** Catch basins within the IWPA transport storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential sources of contamination include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

   Recommendation:

- Work with the Town to have to the catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in storm runoff.

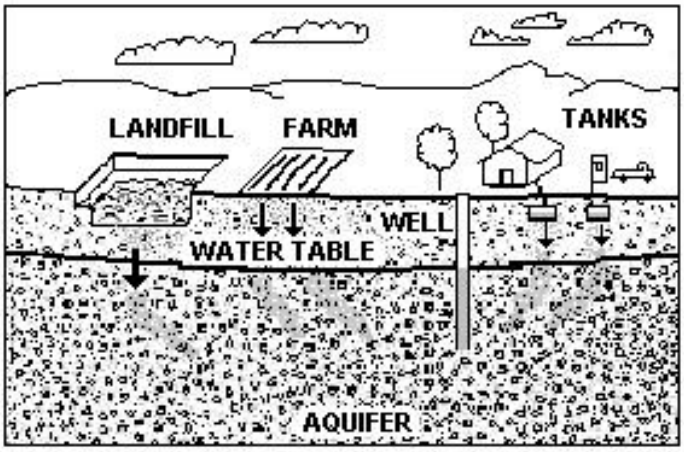

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Dawning Place School should review and adopt the key recommendations above and the following:

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

Zone I:

- Consider well relocation if Zone I threats cannot be mitigated.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers and certified operator. **Facilities Management:**
- Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.

Planning:

- Work with local officials in Dudley to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet